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ABSTRACT

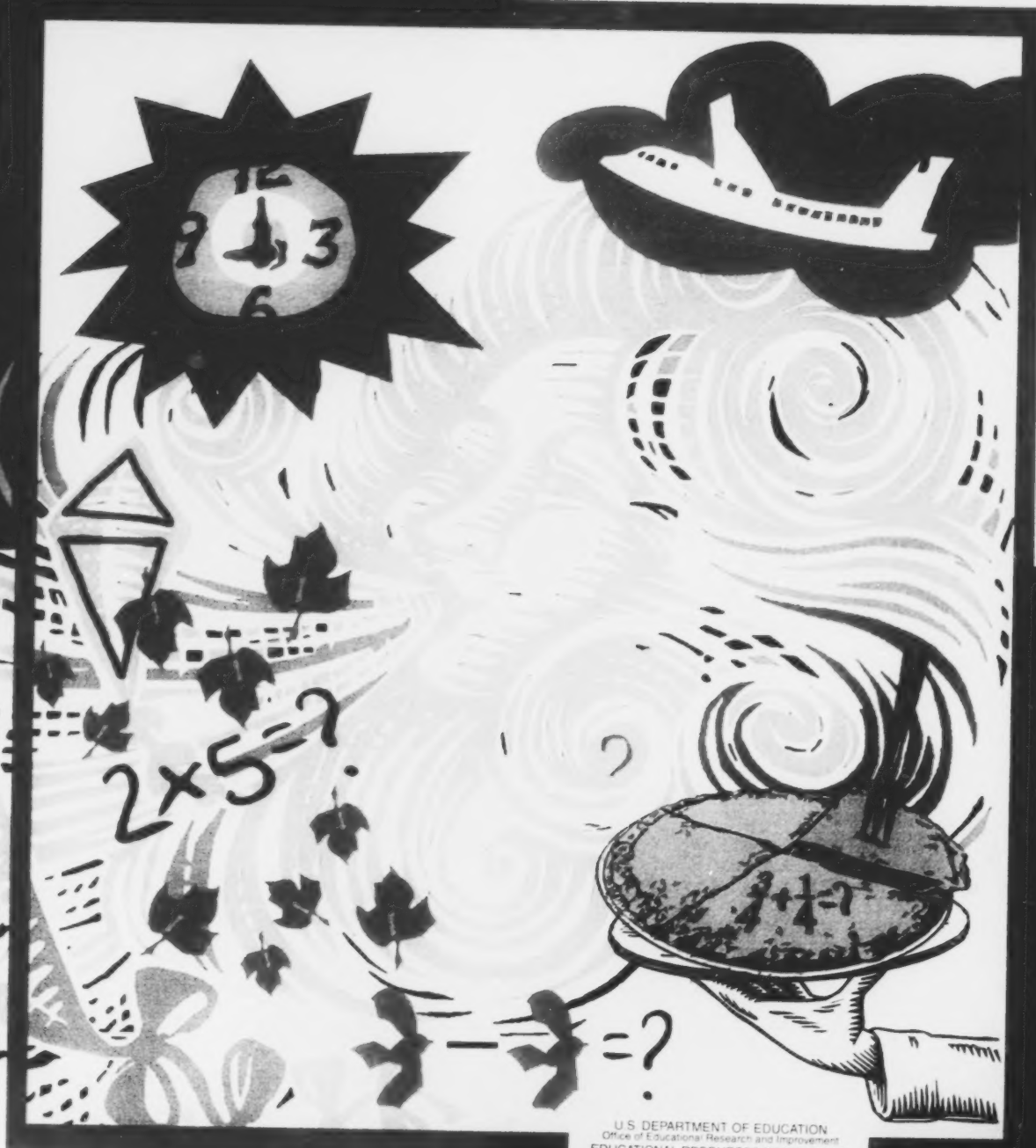
Mathematics has become increasingly important in this technological age. That is why it is even more important for children to learn mathematics at home as well as in school. This second edition of "Helping Your Children Learn Math" is for parents of children in kindergarten through fifth grade. It has been revised to include a variety of activities that will help children learn and apply mathematical concepts such as geometry, algebra, measurement, statistics, and probability in useful and fun ways. All of the 29 activities in this book relate mathematics to everyday life and complement many school mathematics lessons. Additional resources are also listed at the end. (ASK)

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Child Learn Math



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Helping Your Child Learn Math

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Foreword

Meeting concerned families who are actively involved in their children's learning is a continuing source of inspiration in my position as Secretary. As I travel across the country, I see firsthand what 30 years of research proves—children whose families read to them, help them with homework, talk to their teachers, and participate in their learning in other ways have a tremendous advantage in school.

We know that one of the most powerful forces we have to strengthen student achievement is a family's fundamental desire to prepare their children to succeed in the world. Many families know that the first step toward success for their children when they enter school is to master basic skills, such as reading and math. *Helping Your Child Learn Math* provides proven ideas and activities for families to help their children succeed in math.

Today, math includes much more than arithmetic. Even in elementary school, children should be learning beginning concepts in algebra, geometry, measurement, and statistics. In addition, they should be learning how to solve problems by applying a knowledge of math to new situations, to understand math concepts, to reason mathematically, and to communicate mathematical ideas by talking and writing about math.

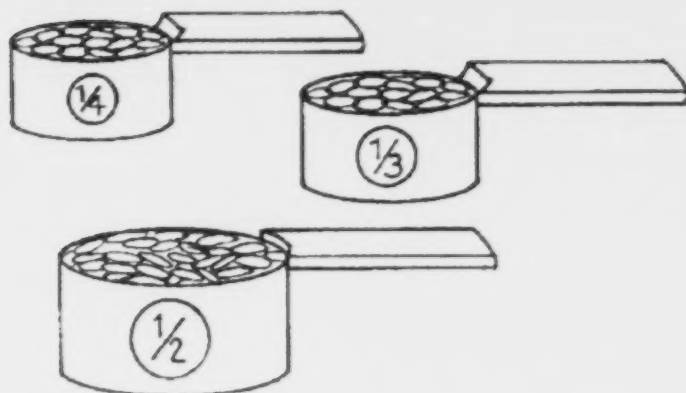
Demand for skills in mathematics, science, and technology are continually increasing. To be successful in college and the workplace, students should take at least three years of rigorous high school math, aiming for calculus and even Advanced Placement mathematics. We now believe that by the end of the eighth grade, students should have mastered the fundamentals of algebra and geometry to be ready for high school and on track for college and the workforce.

Perhaps one of the most important ways that families can reinforce mathematics achievement is simply by having a positive attitude that children can master challenging math. Too often, we undermine our children's interest in math by using statements such as "math is hard" or "I didn't like math either." Research shows that when we believe all children can learn challenging materials and we set high expectations, children rise to the occasion.

This booklet includes activities for families with elementary school-aged children. These activities use materials found inside your home and also make learning experiences out of everyday routines, such as grocery shopping and cooking. The activities are designed for you to have fun with your child while reinforcing mathematical skills.

This booklet is part of a series aimed at helping families participate in their children's learning. We hope you and your children will enjoy the activities suggested in this book and develop many more of your own. I commend you for being an involved family. Your commitment will encourage your children to reach their full potential.

Richard W. Riley
Secretary
U.S. Department of Education



Parent Pointer

In 1995, a mathematics test was given to fourth graders in 41 nations. This testing was part of the Third International Mathematics and Science Study (TIMSS). In looking at how U.S. students did on the test compared to those from other countries, U.S. students did better than the international average in the areas of whole numbers; fractions and proportionality; data representation, analysis, and probability; geometry; and patterns, relations, and functions. Our students were below the international average in measurement, estimation, and number sense.

$$4 + 9 + 8 + 2 = 23$$

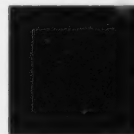
$$4 + 9 - (8 + 2) = 3$$

$$(8 - 4) \times (9 - 2) = 28$$

$$(9 - 8) \times (4 - 2) = 2$$

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Introduction

As our children go about their daily lives exploring and discovering things around them, they are exposed to the world of mathematics. And since mathematics has become increasingly important in this technological age, it is even more important for our children to learn math at home, as well as in school.

This second edition of *Helping Your Child Learn Math* is for parents of children in kindergarten through fifth grade. It has been revised to include a variety of activities that will help children learn and apply mathematical concepts such as geometry, algebra, measurement, statistics, and probability in a useful and fun way. All of the activities in this book relate math to everyday life and complement many of the math lessons that children are learning in school. These fun activities use materials that are easy to find. They can be done in the home, at the grocery store, while traveling, or just for the fun of it.

Attitude Counts

How do you feel about math? Your feelings will have an impact on how your children think about math and themselves as mathematicians. Take a few minutes to answer these questions:

- Do you think **everyone** can learn math?
- Do you think of math as useful in everyday life?
- Do you believe that most jobs today require math skills?

If you answer "yes" to most of these questions, then you are probably encouraging your child to think mathematically. Positive attitudes about math are important for your child's success. This book will help reinforce these positive attitudes about math.

Mathematics as Problem Solving, Communication, and Reasoning

Helping your child learn to solve problems, to communicate mathematically, and to demonstrate reasoning abilities are fundamental to learning mathematics. These attributes will improve your child's understanding of and interest in math concepts and thinking. Before beginning the activities in this book, let's first look at what it means to:

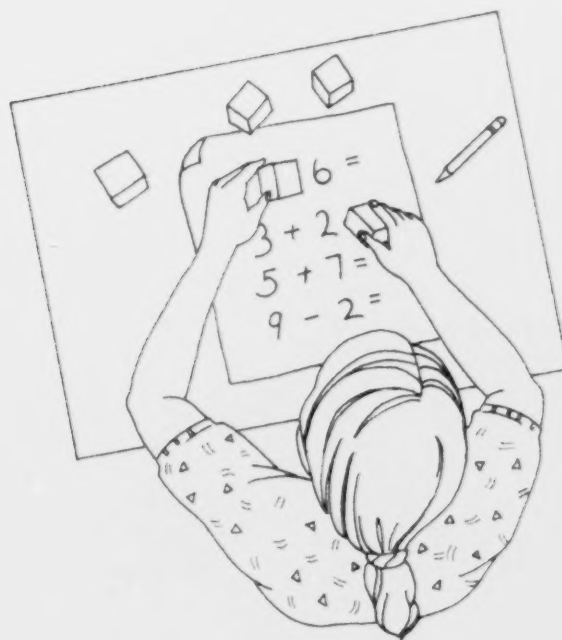
- Be a Problem Solver,
- Communicate Mathematically, and
- Demonstrate Reasoning Ability.



A *problem solver* is someone who questions, investigates, and explores solutions to problems; demonstrates the ability to stick with a problem to find a solution; understands that there may be different ways to arrive at an answer; considers many different answers to a problem; and applies math to everyday situations and uses it successfully. You can encourage your child to be a good problem solver by involving him or her in family decisionmaking using math.

To *communicate mathematically* means to use words, numbers, or mathematical symbols to explain situations; to talk about how you arrived at an answer; to listen to others' ways of thinking and perhaps alter their thinking; to use pictures to explain something; and to write about math, not just give an answer. You can help your child learn to communicate mathematically by asking your child to explain a math problem or answer. Ask your child to write about the process she or he used, or to draw a picture of how he or she arrived at an answer to a problem.

Reasoning ability means thinking logically, being able to see similarities and differences about things, making choices based on those differences, and thinking about relationships among things. You can encourage your child to explain his or her answers to easy math problems and to the more complicated ones. As you listen, you will hear your child sharing his or her reasoning.



Important Things To Know

1. Problems Can Be Solved in Different Ways

While some problems in math may have only one solution, there may be many ways to get the right answer. Learning math is **not only finding the correct answer**, it's also a process of solving problems and applying what you have learned to new problems.

2. Wrong Answers Can Help!

While accuracy is always important, a wrong answer could help you—and your child—discover what your child may not understand. The wrong answer tells you to look further, to ask questions, and to see what the wrong answer is saying about the child's understanding. It is highly likely that when you studied math, you were expected to complete lots of problems using one, memorized method and to do them quickly. Today, the focus is less on the quantity of memorized problems and memorized methods and more on understanding the concepts and applying thinking skills to arrive at an answer.

Sometimes, a child may arrive at the wrong answer to a problem, because the child misunderstands the question being asked. For example, when children see the problem $4 + \underline{\quad} = 9$, they often respond with an answer of 13. That is because they think the problem is asking, "What is $4 + 9$?" instead of "4 plus what missing number equals 9?"

Ask your child to explain how a math problem was solved. The explanation might help you discover if your child needs help with the procedures; the number skills, such as addition, subtraction, multiplication, and division; or the concepts involved. In working with your child, you may learn something the teacher might find helpful. A short note or call will alert the teacher to possible ways of helping your child learn math more easily.

Help your children be risk takers. Help them see the value of trying to do a problem even if it is difficult for them. Give your child time to explore the different approaches to solving a problem. Your child's way might differ from yours, but if the answer is correct and the strategy or way of solving it has worked, it may be a great alternative. By encouraging children to talk about what they are thinking, we help them to have stronger math skills and become independent thinkers.

3. Doing Math in Your Head Is Important

Have you ever noticed that today very few people take their pencil and paper out to solve problems in the grocery store, restaurant, department store, or in the office? Instead, most people estimate in their heads, or use calculators or computers.

Using calculators and computers demands that people put in the correct information and that they know if the answers are reasonable. Usually people look at the answer to determine if it makes sense, applying the math in their heads (mental math) to the problem. This, then, is the reason mental math is so important to our children as they enter the 21st century. Using mental math can make children become stronger in everyday math skills.

4. It's Okay to Use a Calculator

It's okay to use calculators and computers to solve math problems. In fact, students are taught to use calculators at young ages and are often required to use them to do homework and take tests. The Scholastic Assessment Test (SAT), for example, permits the use of calculators for its timed tests. Many schools teach computer courses that include how to do spread sheets, statistical display, and computer-assisted designs for mechanical drawing and graphics. Schools often sell calculators to families at a low cost or supply them for all students to use. Knowing how to use a calculator and computer is a benefit for all students.

How Do I Use This Book?

This book is divided into introductory material that explains the basic principles behind the current approaches to math, sections on activities you can do with your children, and lists of resources.

The activities are arranged by levels of difficulty. Look for the suggested grade levels on each page that indicates the level of difficulty. The activities you choose and the level of difficulty depend on your child's ability. If your child seems ready, you might want to skip the easier exercises and go straight to the more challenging ones. Each activity includes a tip box with a simple explanation of the mathematical concept behind the activity, so that when your child asks, "Why are we doing this?"—you can explain.

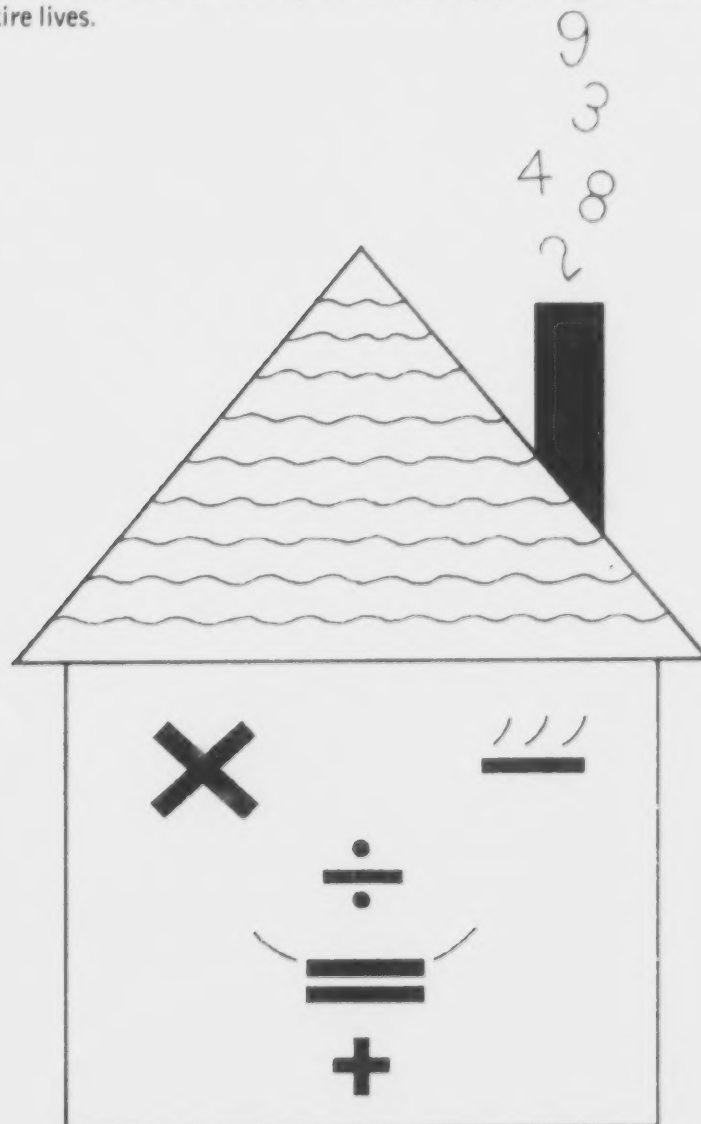
Let's Go and Explore Math!

Mathematics is everywhere, and every day is filled with opportunities to help children experience it. So flip through the pages, find an activity, and get ready to help your child explore math and have fun at the same time.

Math in the Home

Your home is full of opportunities to explore math with your child and, at the same time, build his or her self-confidence and understanding of mathematical ideas. This is a chance for you and your child to "talk math"—that is, to communicate about math while discovering relationships between numbers. Being able to describe mathematical patterns and relationships, such as those between "addition and subtraction" or "odd and even numbers," is important to later success in math.

The activities in this section are intended to be enjoyable and inviting and use items that can be found in your home. While doing the activities, keep in mind that an understanding of math and a sense that math is enjoyable will help children develop skills that they will need for success their entire lives.



Parent Pointer

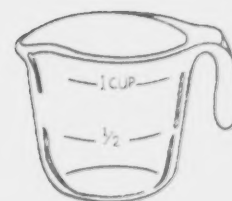
Filling empty containers provides opportunities to explore comparisons, measurement, volume, estimation, and geometry.

Fill It Up

Grades K-2

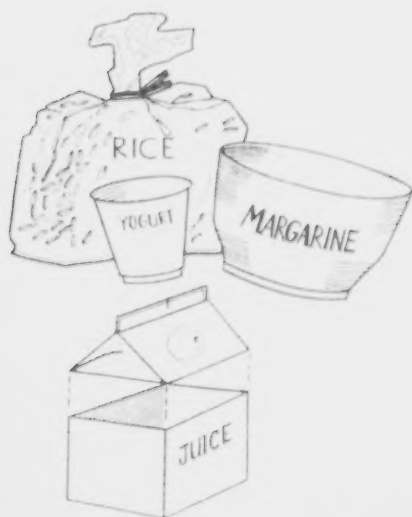
What you'll need

A measuring cup, 4 glasses of equal size, and water



What to do

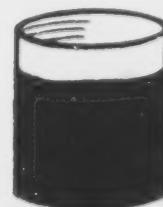
1. Pour water at different levels ($\frac{1}{3}$ cup, $\frac{1}{2}$ cup, $\frac{3}{4}$ cup and 1 cup) in each glass. Put the glasses next to each other. Ask your child: Are all the water levels the same or different?
2. Ask your child questions to encourage comparison, estimation, and thinking about measurement. Which glass has more water? Which has less? How many glasses of water do you estimate it will take to fill the container?
3. Pour more water into one of the glasses to make it equal to the amount of water in another glass. Move the glasses around so that the glasses that have the same amount of water are not next to each other. Ask your child: Which glasses do you think have the same amount of water?
4. As your child begins to understand more, do activities using different-shaped containers that hold the same amount of a substance (water, rice, and popcorn kernels). This helps your child see comparisons, as well as the various capacities of different-sized and -shaped containers.



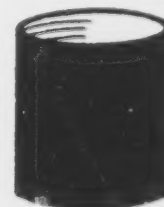
$\frac{1}{3}$ cup full



$\frac{1}{2}$ cup full



$\frac{3}{4}$ cup full



1 cup full

Fractured Fractions

Grades K-3

What you'll need

Clear container, masking tape, marker, measuring cups ($\frac{1}{2}$, $\frac{1}{3}$, or $\frac{1}{4}$ cup measure), uncooked rice or popcorn kernels, and water

What to do

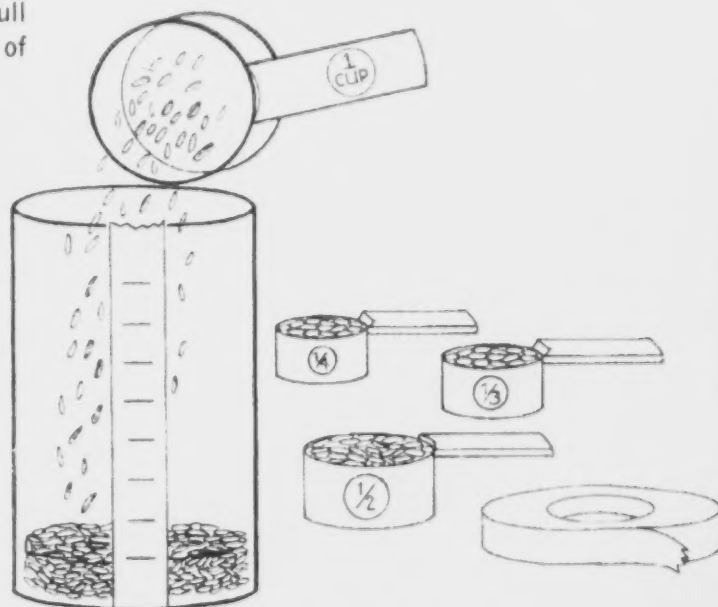
1. Have your child stick a piece of masking tape straight up one side of the clear container from the bottom to the top.
2. For younger children, use a $\frac{1}{2}$ cup measure. For older children, use a $\frac{1}{3}$ or $\frac{1}{4}$ cup measure. Choose the unit of measure and fill the measuring cup. Then let your child pour the substance from the measuring cup into the clear container. Continue to pour the same amount of the substance into the container.
3. As each equal amount of the substance is poured, mark the level on the container by drawing a line on the tape. Write the cup size or appropriate fraction on each line. The fraction for one-third cup would be $\frac{1}{3}$.
4. Follow this procedure until the container is full and the tape is marked in increments to the top of the container.
5. Fill the container again and again using different measures each time. Ask your child "thinking" questions.

How many whole cups do you think this container will hold? How many $\frac{1}{2}$ cups, $\frac{1}{3}$ cups, or $\frac{1}{4}$ cups do you think the container will hold?

How many $\frac{1}{2}$ cups equal a cup?

How many $\frac{1}{4}$ cups equal $\frac{1}{2}$ cup? A cup?

How many $\frac{1}{4}$ cups equal $\frac{3}{4}$ cup?



Parent Pointer

This hands-on activity explores whole numbers and fractions by using measurements your children can see. Your children also will learn to guess or estimate quantities.

Money's Worth Grades 1-3

Parent Pointer

Coin games help children to learn the value of coins. They also teach counting, addition, subtraction, and multiplication. Coupons can help teach children money management, as well as subtraction and percentages.

What you'll need

Coins, grocery store coupons, and a pencil

What to do

1. **Coin clues.** Ask your child to gather some change in his or her hand without showing what it is. Start with amounts of 25 cents or less (for first-graders, you can start with pennies and nickels). Ask your child to tell you how much money and how many coins there are. Guess which coins are being held. For example, "I have 17 cents and 5 coins. What coins do I have?" (3 nickels and 2 pennies).
2. **Clip and save.** Cut out grocery store coupons and tell how much money is saved with coins. For example, if you save 20 cents on detergent, say 2 dimes. Ask your child what could be purchased using the savings from the coupon. A pack of gum? A pencil? How much money could be saved with 3, 4, or 5 coupons? How could that money be counted out in coins and bills? What could be purchased with those savings? A pack of notebook paper? A magazine? How much money could be saved with coupons for a week's worth of groceries? How would that money be counted out? What could be purchased with those savings? A book? A movie ticket? What percentage of the original price is the coupon worth?
3. **Count the ways.** How many ways can you make 10 cents, 25 cents, 30 cents, 40 cents, or 50 cents? You can help your child add the coins in various ways to get different answers.
4. Try playing the coin games with coins from another country.



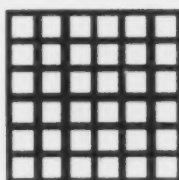
In the News

Grades K-2

What you'll need

Newspaper, scissors, pencil or crayon, glue, and graph paper

What to do



Parent Pointer

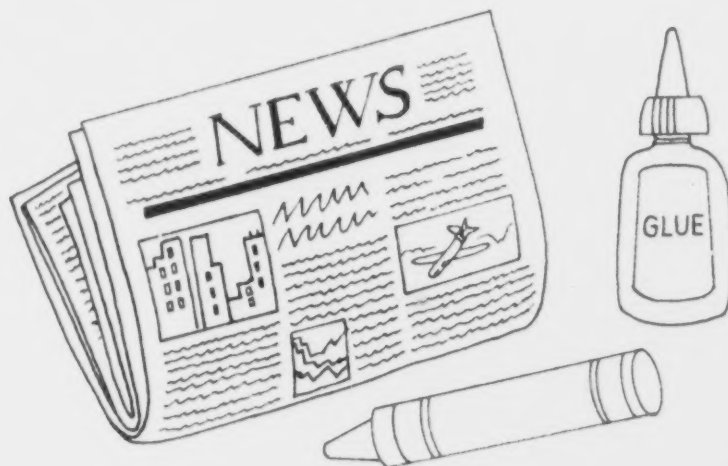
This newspaper activity helps children read and understand numbers and charts.

1. **Newspaper numbers.** Help your child look for numbers 1 to 100 in the newspaper. Cut the numbers out and glue them in numerical order onto a large piece of paper. For children who cannot count to 100 or recognize numbers that large, only collect up to the number they do know. Have your child say the numbers to you and practice counting up to that number.

Or

Collect only numbers within a certain range, like the numbers between 20 and 30. Arrange the numbers on a chart, grouping all the numbers with 2s in them, all the numbers with 5s, and so on.

2. **Counting book.** Cut out pictures from the newspaper and use them to make a counting book. Page 1 will have one thing on it, page 2 will have 2 things that are alike, page 3 will have 3 things that are alike, and so on. All the things on the each page have to be the same. At the bottom of each page, write the number of items on the page and the word for the item. Have your child tell you a story about what is on the page.



Newspaper Search

Grades 3-5

Parent Pointer

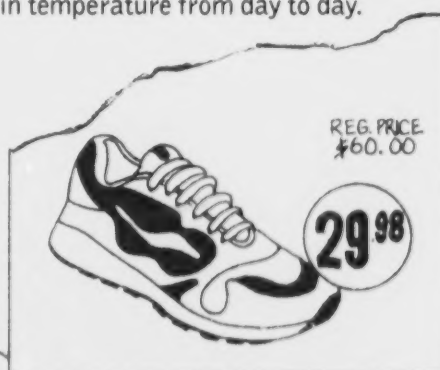
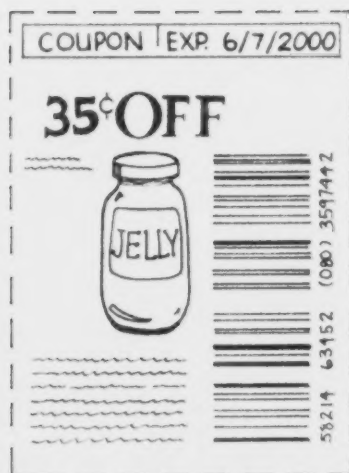
This activity helps children see how much math is used in everyday life. It also helps in the variety of ways in which math is used to tell a story, read a timetable or schedule, plan a shopping list, or study the weather.

What you'll need

Newspaper, calculator, pencil, paper, and graph paper (can be hand-drawn)

What to do

1. **List it.** Give your child the grocery section of the newspaper in order to make up a list of foods that will feed the family for a week and also meet a budget of a certain amount of money. Have your child make a chart and use mental math or a calculator to figure the cost of a few items. If the total for the groceries is more than you have budgeted for, talk about which items can be eliminated. Could the list be cut down by a few items or by buying less of another item? What will best serve the needs of the family?
2. **Shop around.** Have your child search for advertisements in the newspaper for an item they have been wanting, such as a piece of clothing or tennis shoes, in order to find the lowest price for the item. After your child finds the best buy, have him or her compare the best buy to the rest of the advertised prices. Are this store's prices lower for everything or just items in demand?
3. **Highs and lows.** Have your child search the newspaper for daily temperatures and create a graph showing weekly trends. Ask your child for the differences in temperature from day to day.



Treasure Hunt

Grades K-2

What you'll need

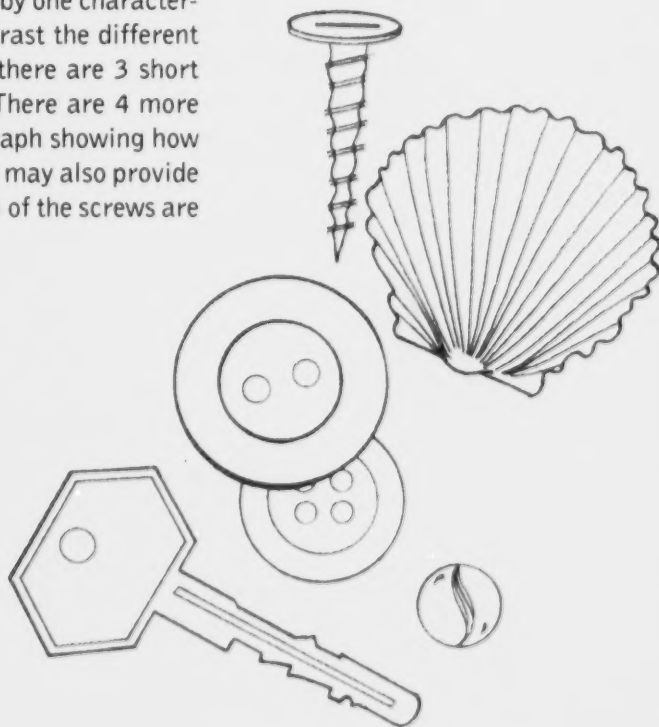
Large container, buttons, screws, bottle caps, old keys, anything else you can count, and graph paper (can be hand-drawn)

What to do

1. Find a container to hold the treasures.
2. Sort and classify the treasures. For example, do you have all the same-sized screws or keys? How are they alike? How are they different?
3. Use these treasures to tell addition, subtraction, multiplication, and division stories. For example, if we share 17 buttons among 3 friends, how many will we each get? Will there be some left over? Or if we have 3 shirts that need 6 buttons each, do we have enough buttons?
4. For older children, you can organize the treasures by one characteristic and lay them end to end. Compare and contrast the different amounts of that type of treasure. For example, there are 3 short screws, 7 long screws, and 11 medium screws. There are 4 more medium screws than long ones. Make a simple graph showing how many of each type of screw there are. This activity may also provide an opportunity to talk about fractions: $\frac{7}{21}$ or $\frac{1}{3}$ of the screws are long.

Parent Pointer

Organizing the "treasures" in one's house provides practice in addition, subtraction, multiplication, and division. Children can also graph data on shapes and sizes.



Parent Pointer

Recognizing 2-dimensional shapes in 3-dimensional objects and visualizing shapes are essential skills in fields as varied as architecture, manufacturing, medicine, and design.

Squash That Box

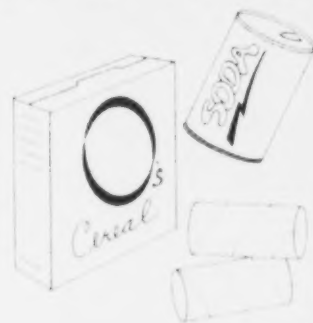
Grades 4-5

Ever notice what happens when you flatten cereal boxes, tin cans, or other 3-dimensional shapes for recycling? Or do you ever wonder how they design and make all those interesting containers you find in the department store? Mathematicians call the flat, unfolded designs of 3-dimensional shapes "nets."

What you'll need

Small cardboard boxes, aluminum cans, and cardboard tubes from toilet paper or paper towels

What to do



Here is the net of a cube.



Here is the net of a cylinder.

1. Explain to your child that when we recycle materials, we need to flatten them. Ask him or her why (to save space). Ask your child to imagine what shapes will be created when you flatten the boxes or cans. Some people crush cans, which is not the same as flattening. When you take apart a cylinder, you have two circles for the ends and the flat cylinder makes a rectangle. Cut a cardboard tube lengthwise. What shape do you see (a rectangle)? What will a cereal box look like if you carefully unfold it and cut along the edges?
2. Unfold a cardboard box, without showing your child the original box. Ask your child to imagine what the original box looked like. What shape will it be when it is put back together? How will the ends look?
3. Have your child trace all the faces of a box or other 3-dimensional shapes by laying every side and top and bottom on the paper to be traced. Ask the child the names of the drawn 2-dimensional shapes.
4. Have your child study a box. Then see if your child can draw a net (the unfolded version) of the box. Unfold the box to see how closely the drawn net corresponds to the actual net. What would the net of a pyramid look like? What would the net of a cube look like?

Simply Symmetrical

Grades 1-5

What you'll need

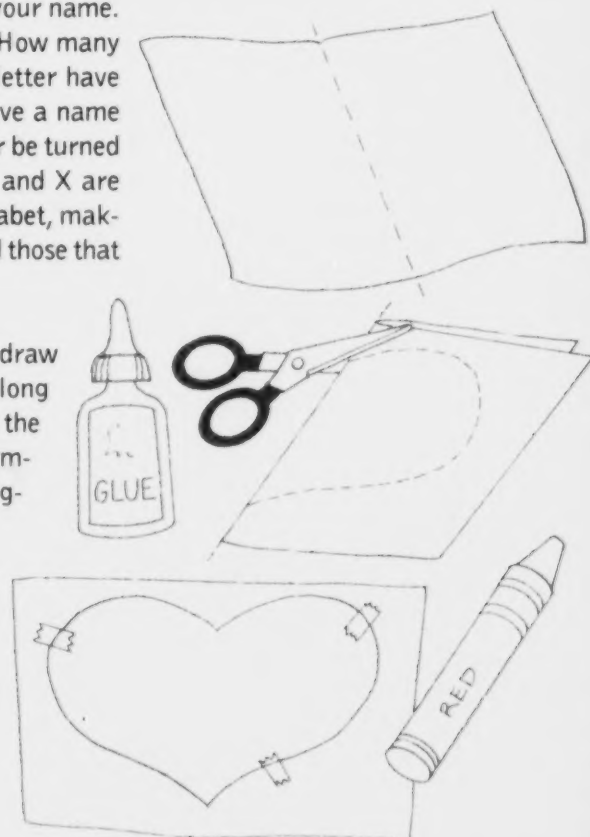
Paper, pencil, marker or crayon, magazine pictures, scissors, and glue

What to do

1. Explore your house for symmetrical designs. See how many your child can find. Look at wallpaper, floor tiles, pictures, bedspreads, and appliances.
2. Cut out a magazine picture that is symmetrical. Cut it along the line of symmetry. Paste one half of the picture on the paper. Have your child draw the missing half.
3. Write your child's name in big block letters, then write your name. Which name has more letters with lines of symmetry? How many letters have one line of symmetry? How many of each letter have two? (a B has one line, an H has two). Does anyone have a name with all symmetrical letters? (BOB is one.) Can any letter be turned upside down and still look the same? (Yes—H, I, O, S, and X are symmetrical around a center point.) Go through the alphabet, making a list of the letters that look the same on both sides and those that look different.
4. Fold a sheet of paper in half lengthwise. Have your child draw half of a circle, heart, or butterfly from top to bottom along the fold on each side of the paper. Help your child cut out the shapes that were drawn. Unfold the paper to see the symmetrical figure. Have your child color and glue the full figure on another sheet of paper to display the design.

Parent Pointer

A shape can be symmetrical when two parts of it are exactly alike. This exercise helps young children develop an understanding of symmetry and a sense of geometric patterns.



Parent Pointer
Statistics includes
collecting informa-
tion, analyzing it, and
describing or present-
ing the findings in an
organized way.

Tracking Time Grades 2-5

What you'll need

Clock or watch, newspaper, blank paper, and
graph paper (can be hand-drawn)

What to do

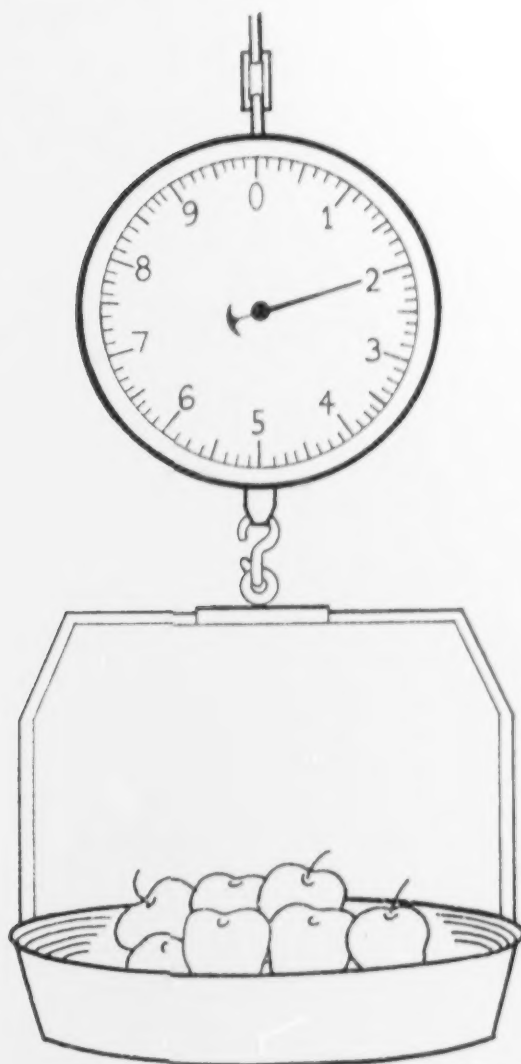
1. Together with your child, keep track of the time he or she spends watching television as well as doing homework. Make a table listing the 7 days of 1 week. Keep two columns, one for television and one for homework. At the end of the week, see if together you can make a graph comparing the two different activity columns.
2. While watching television, make a chart showing how much time in every hour is used for commercials compared to how much time is used for the actual show. Do this for every half-hour of television you watch. Then make a bar or pie chart showing the two amounts. Time the minutes carefully.
3. Together with your child, keep track of how he or she spends time in one 24-hour period: time spent sleeping, eating, playing, reading, and going to school. Measure a strip of paper that is 24 inches long. Let each inch represent 1 hour. Color in the number of hours for each activity, using a different color for each activity. When finished, make the strip into a circle and place it on a blank piece of paper. Trace around the circle. Then make lines from the center of the circle to the end of each color. Your child has just made a circle (pie) chart of how he or she spends 24 hours. Compare this with how other people in your family spend their time.



Math at the Grocery Store

The grocery store is one of the best examples of a place where math is real. It's a great place for practicing measurement, estimation, and quantity. Since trips to the store usually affect everyone in the family, the following activities include various levels of difficulty within the activity.

Allowing your children to participate in weighing, counting, and figuring price per unit versus price per pound will help improve their ability to estimate and predict amounts with accuracy.



Parent Pointer
Preparing a shopping
list from advertised
prices can help children
with mental math and
estimation.

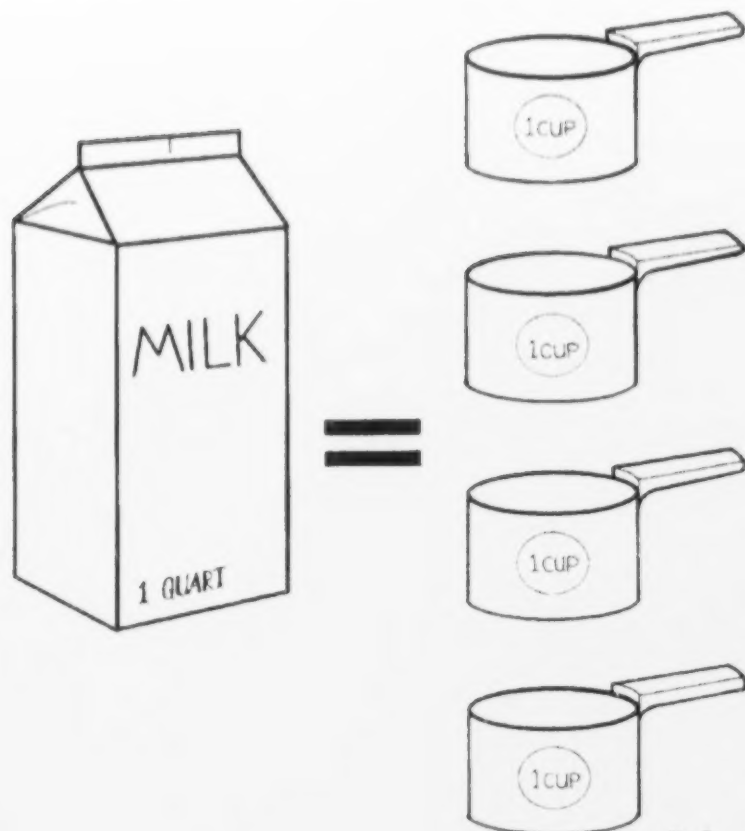
Get Ready Grades K-2

What you'll need

Grocery store coupons and paper

What to do

1. Involve the family in making a shopping list. Mark checks or tallies next to each item to indicate the number needed. This helps children learn to collect data.
2. Involve the children in predicting how much milk or juice will be needed for a week. You might decide to estimate by cups, explaining that 4 cups are equal to a quart and 4 quarts are equal to a gallon. Also, try estimating by liters. How does a liter compare to a gallon?
3. Choose coupons that match the items on the grocery list. Discuss how much money will be saved on various items by using coupons.



Weighing In

Grades 3-5

What you'll need

A grocery scale or your scale at home

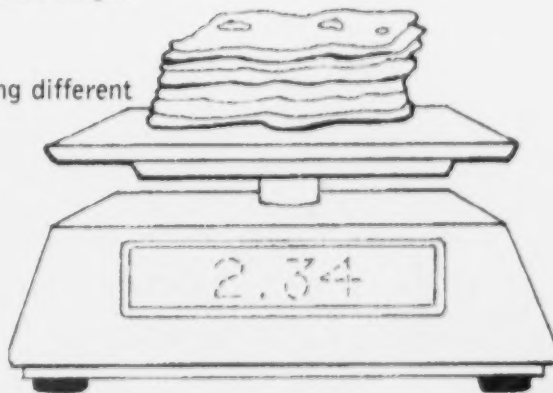
What to do

1. Help your child examine the scale in the grocery store or the one you have at home. Explain that pounds are divided into smaller parts called ounces and 16 ounces equal a pound.
2. Gather the produce you are purchasing, and estimate the weight of each item before weighing it. If you need 1 pound of grapes, ask your child to place the first bunch of grapes on the weighing scale, and then estimate how many more or fewer grapes are needed to make exactly 1 pound.
3. Let your child hold an item in each hand and guess which item weighs more. Then use the scale to check.
4. Ask questions to encourage thinking about measurement and estimation. You might want to ask your child: How much do you think 6 apples will weigh? More than a pound, less than a pound, or equal to a pound? How much do the apples really weigh? Do they weigh more or less than you estimated? Will 6 potatoes weigh more or less than the apples? How much do potatoes cost per pound? If they cost 10 cents per pound, what is the total cost?
5. Try weighing items using the metric system. How many grams does an apple weigh? How many kilograms does a sack of potatoes weigh? How does a kilogram compare to a pound?

Let your child experiment with the store scale by weighing different products.

Parent Pointer

There are many opportunities to increase estimation and measurement skills by weighing objects in the produce section of the grocery store.



Get into Shapes

Grades 2-4

Parent Pointer

Recognizing the different shapes that food is packaged in, such as square boxes, rectangular boxes, cones, and cylinders, will help children connect math and volume principles to the real world.

What to do

1. Show your child the pictures of the shapes on this page (cone, cylinder, square boxes, and rectangular prism) before going to the store. This will help your child identify them when you get to the store.
2. At the store, ask your child questions to generate interest in the shapes. Which items are solid? Which are flat? Which shapes have flat sides? Which have circles for faces? Which have rectangles? Do any have points at the top?
3. Point out shapes and talk about their qualities and their use in daily life. Look to see what shapes stack easily. Why do they? Try to find some cones. How many can you find? Look for stacks that look like a pyramid. Determine which solids take up a lot of space and which ones stack well. Discuss why space is important to the grocer and why the grocer cares about what stacks well. (More space allows for more products to be stored.)



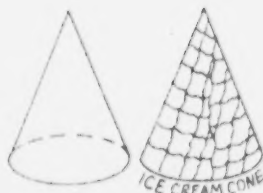
CUBES



CYLINDERS



RECTANGULAR PRISMS



CONES

Check It Out

Grades 2-3

What you'll need

Money

What to do

1. Have your child estimate the total price of items in a shopping cart. An easy way to estimate totals is to assign an average price to each item. If you have 10 items and the average price for each item is \$2, the total price estimate would be about \$20.
2. Using the estimated total, ask your child: If I have 10 one-dollar bills, how many ones will I have to give the clerk? If I have a 20-dollar bill, how much change should I receive? If I get coins back, what coins will I get?
3. At the checkout counter, what is the actual cost? How does this compare to your estimate? When you pay for the items, will you get change back?
4. Count the change with your child to make sure the change is correct.

Parent Pointer
Help your child use mental math by estimating cost. Then have your child participate in the checkout process where the total is added up, money is exchanged, and change is returned.



It's in the Bag

Grades K-4

Parent Pointer

Explore ways to estimate volume and weight by looking in the bag and feeling how much it weighs. Compare it to a known weight (such as a 5-pound bag of sugar).

What to do

1. After getting home from grocery shopping, have your child guess how many objects there are in a bag. Ask: Is it full? Could it hold more? Could it tear if you put more in it? Are there more things in another bag of the same size? Why do some bags hold more or less than others?
2. Put several 1-pound items in a bag. Let your child pick it up. Estimate the weight and then count the items. Was your estimate close or not?
3. Estimate the weight of the bag of groceries. Does it weigh 5 pounds, 10 pounds, or more? How can you check your estimate? Now, compare one bag to another. Which is lighter or heavier? Why?



Put It Away

Grades K-1

What you'll need

Paper, pencil, ruler, and computer

What to do

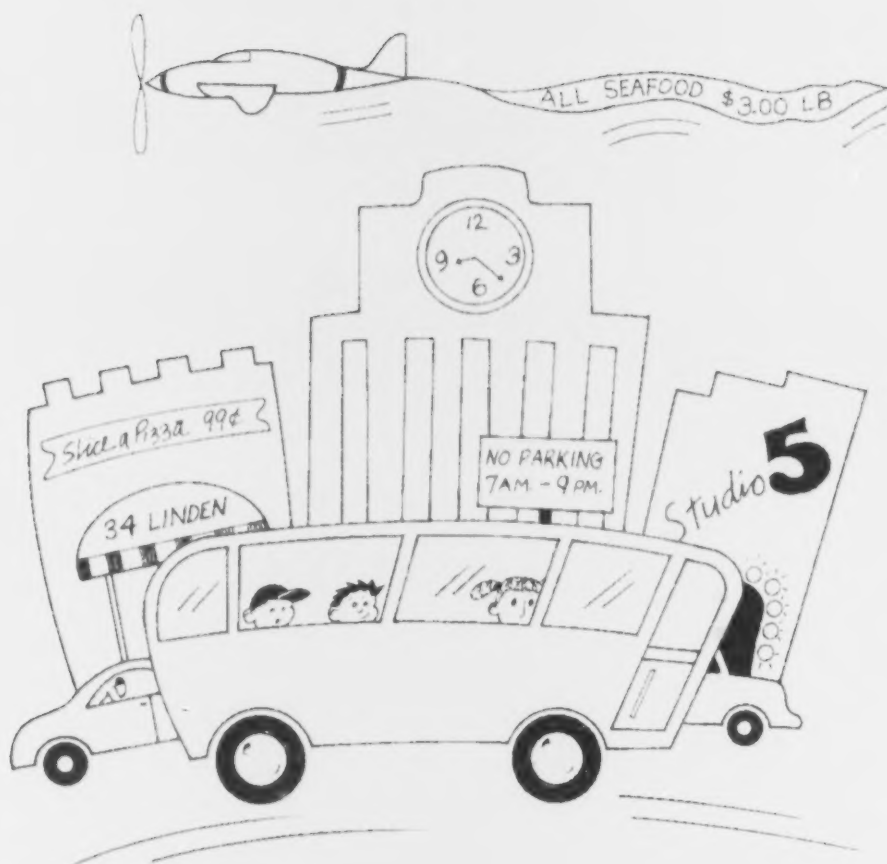
1. After getting home from grocery shopping, find one characteristic that is the same for some of the products. For example, some are boxes and some are cans.
2. Put together all the items that have the same characteristic.
3. Find another way to group these items.
4. Continue sorting, finding as many different ways to group the items as you can.
5. Play "Guess My Rule." In this game, you sort the items and ask your child to guess your rule for sorting them. Then, reverse roles and let your child sort the items so that you can guess their rule.
6. Using paper, pencil, ruler, and computer, make a chart of how many items are in each category.

Parent Pointer
Putting away groceries helps children develop classifying and reasoning skills and the ability to examine data or information.



Math on the Go

In this busy world, we spend a lot of time moving from place to place in our cars, on buses and trains, and on foot. Use your traveling time as an opportunity to learn about math. Look around as you travel from place to place, and help your child find numbers on buildings, buses, taxis, and houses that they can add and subtract while on the road. Not only will your child be learning and practicing math skills, but the time you spend traveling will go by more quickly as well.



Number Search

Grades K-3

What you'll need

Paper, pencil, and ruler

What to do

1. Create a chart that lists the numbers from 1 to 50.
2. Write down each number as family members locate that number on a car, a sign, a building, or other objects in your community.
3. Write down words that have numbers in them, such as "one-stop shopping," "two-day service," "buy one, get one free," or "open seven days a week."

Parent Pointer

This activity provides children with lots of opportunities to practice number recognition, as well as counting and writing skills.



License Plate Special

Grades 2-5

Parent Pointer

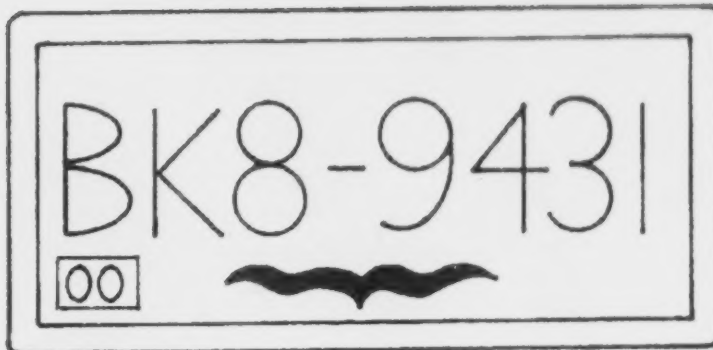
This license plate activity encourages reading, recognizing numbers, noticing symbols, writing, counting, and graphing.

What you'll need

License plates, paper, pencil, and ruler

What to do

1. Copy down a license plate number as you are traveling in your car, walking around the neighborhood, or sitting on a park bench watching cars go by. Read the license plate as a number (excluding the letters). For example, if the license were 663M218, the number would be six hundred and sixty-three thousand two hundred and eighteen.
2. Find other license plates and read their numbers. Is the number less than, greater than, or equal to yours?
3. Estimate the difference between your number and another license plate. Is it 10, 100, 1,000, or 10,000?
4. Record the names of the states of many different license plates as you see them. From which state do you see the most? Which has the fewest? Prepare a chart or graph to show your findings.



License Plate Riddles

Grades K-5

What you'll need

License plates, paper, and pencil

What to do

1. While traveling in a car, or on a bus, everyone watches for license plates, focusing on one in particular for 5 minutes. The object is to use the digits on the license plate to make the largest 3-digit number possible. When a player chooses a license plate during the 5-minute watching period, they call out the 3-digit number they have made from the license plate. The person with the largest number wins the round. Try the next round so the winner is the person with the smallest 3-digit number.
2. Let each letter on a license plate be worth the value of its position in the alphabet. A = 1, M = 13, Z = 26. Each person chooses a license plate and adds the value of the letters. The person with the lowest or the highest value wins the round.
3. For younger children, this activity can be simplified by having them find the largest single digit, or double digit, or even add all the numbers on the license plate, or just recognize digits.

Parent Pointer

This game helps children to develop their knowledge of numbers and to think algebraically.



Parent Pointer

The problem-solving and computational skills your child uses in this activity are very important to mental math skills, and they also help your child to be creative with numbers.

Total It
Grades 3-5

What you'll need

License plates, paper, pencil, and calculator

What to do

1. As you are traveling in your car, or on a bus, each person takes turns calling out a license plate number.
2. All players try to add the numbers in their heads. Talk about what strategies were used in the mental math addition. Were the numbers added by 10's like $2 + 8$? Were doubles like $6 + 6$ added?

3. Try different problems using the numbers in a license plate. For example, if you use the plate number 663M218, ask "Using the numbers on the plate, can you make 5?"

5 using two numbers? "Yes, $3 + 2 = 5$ "

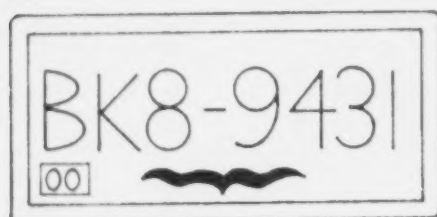
5 using three numbers? "Yes, $(3 + 2) \times 1 = 5$ "

5 using four numbers? "Yes, $(6 + 3 + 1) + 2 = 5$ "

5 using five numbers? "Yes, $(6 + 6 + 3) - (8 + 2) = 5$ "

5 using six numbers? "Yes, $(6 + 6) + (3 \times 1) - (8 + 2) = 5$ "

4. Try using a calculator to play these games. See if you can solve these problems faster using the calculator.



How Long? How Far?

Grades 1-3

What you'll need

Information about how far you're traveling and how long it will take

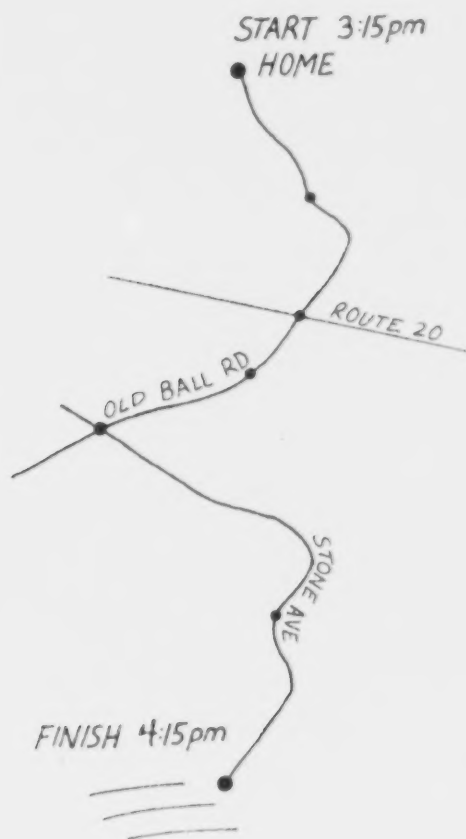
What to do

Many times when you are on the go, you are headed somewhere that requires you to be there by a certain time.

1. Ask your children how far they think you have traveled and how much more you have to travel.
2. Talk about how long it takes to get to your destination. If it is 3:15 now, and it takes 45 minutes to get there, ask if you will make it for a 4:15 appointment? How much extra time will there be? Will we be late?

Parent Pointer

This car, bus, or train traveling exercise provides many opportunities for children to use mental math and estimation to calculate time and distance problems.



Ease on Down the Road

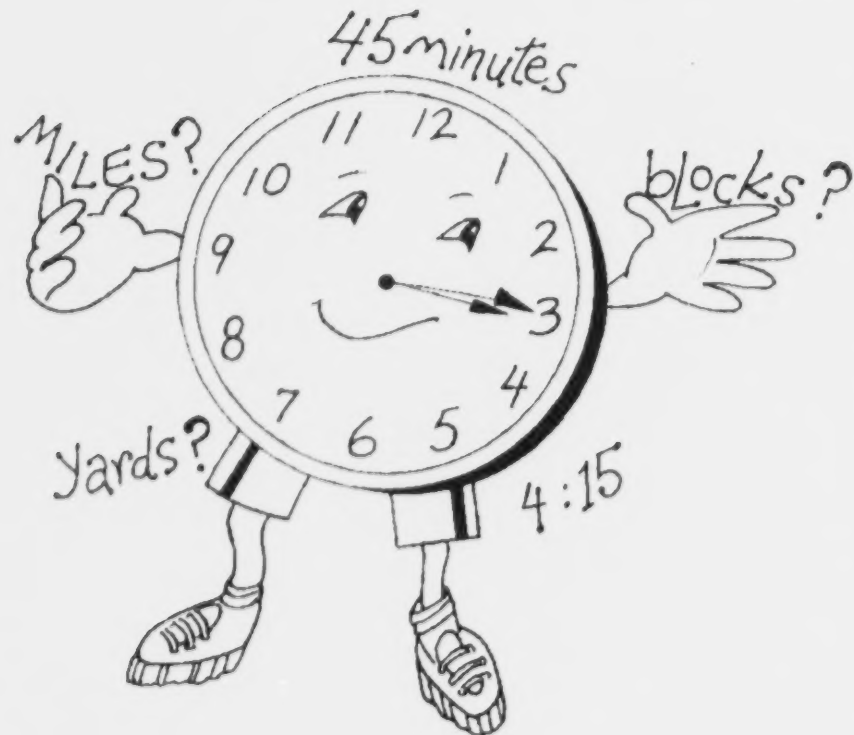
Grades 2-5

Parent Pointer

An important algebra concept is finding relationships between two quantities such as miles per hour or cost per gallon.

What to do

1. A gallon of gas costs \$1.24 a gallon. What does it cost for 5 gallons? 10 gallons? 15 gallons? 20 gallons? What is an easy way to figure this out? How can you estimate the cost by rounding the cost per gallon?
2. The speed limit is 55 miles per hour. How far will you go in 1 hour? Two hours? Three hours? How long will it take to go 500 miles?
3. Use a calculator to check your answers.



Math for the Fun of It

During summer vacations, on rainy days, while waiting at the doctor's office, or on a stroll through the neighborhood—learning never ends. Your children can explore some fascinating mathematical possibilities in the world around them every day. For instance, math can be found outdoors in nature: look for symmetry in leaves; count the number, sizes, and kinds of trees on your street; and look at the various shapes and patterns of blooming flowers. Children will be learning math and enjoying it too! The activities in this section can be done anytime and anywhere.



Guess If You Can

Grades K-5

Parent Pointer

It is important to help children develop an understanding of the characteristics and meanings of numbers.

What to do

1. Let your child think of a number between a stated range of numbers while you try to guess the number by asking questions. Here is a sample conversation.

Child: I am thinking of a number between 1 and 100.

Parent: Is it more than 50?

Child: No.

Parent: Is it an even number?

Child: No.

Parent: Is it more than 20 but less than 40?

Child: Yes.

Parent: Can you reach it by starting at zero and counting by 3s?

Child: Yes.

(At this stage, your child could be thinking of 21, 27, 33, or 39.)

2. Figure out the answers to your own questions.
3. After you have guessed your child's number, let your child guess a number from you by asking similar questions.



What Are the Coins?

Grades 2-5

What you'll need

Some coins

What to do

1. Ask your child the following questions:

I have three coins in my pocket. They are worth 7 cents. What do I have? (a nickel and 2 pennies)

I have three coins in my pocket. They are worth 16 cents. What do I have? (a dime, a nickel, a penny)

I have three coins in my pocket. They are worth 11 cents. What do I have? (2 nickels and 1 penny)

I have three coins in my pockets. They are worth 30 cents. What do I have? (3 dimes)

I have six coins in my pocket. They are worth 30 cents. What could I have? (1 quarter and 5 pennies or 6 nickels). This problem has more than one answer. It is challenging for children to experience problems like this.

I have coins in my pocket, which have a value of 11 cents. How many coins could I have?

You get the idea! Give your child a few coins to figure out the answers.

Parent Pointer

Use this activity to help your child develop an understanding of patterns and variables (the unknown) to solve a problem. This is critical to understanding algebra.



What Are My Chances?

Grades K-5

Parent Pointer

Understanding probability is essential in many areas of mathematics. Playing games that involve chance is one way to explore the laws of probability.

What you'll need

Two coins, paper, and pencil to keep score

What to do

1. Play this game with your child. Flip one coin. Every time it comes up heads, your child gets 1 point. Every time it comes up tails, you get 1 point. Flip it 50 times. Tally by 5s to make it easier to keep track of scores. The person with the most points wins. If one person has 10 points more than the other person does, score an extra 10 points. Does this happen very often? Why not?
2. Flip two coins. If the coins come up two tails or two heads, your child scores 1 point. If it comes up heads and tails, you get 1 point. After 50 flips, see who has more points. Do you think the game is fair? What if one person received 2 points for every double heads and the other person received 1 point for everything else. Is this fair?
3. Flip one coin. Then flip the other. If the second coin matches the first coin, your child scores 1 point. If the second coin doesn't match the first coin, you receive 1 point. Try this 50 times. Is the result the same as in the previous game?



Money Match Grades K-2

What you'll need

One number cube to roll

10 of each coin (penny, nickel, dime, and quarter)



What to do

1. For young players (5- and 6-year-olds) use only two different coins (pennies and nickels or nickels and dimes only). Older children can use all types of coins.
2. Explain that the object of the game is to be the first player to earn a set amount (10 or 20 cents is a good amount).
3. The first player rolls the number cube and gets the number of pennies shown on the cube. Keep all like coins in batches or stacks of 5 or 10.
4. As each player accumulates 5 pennies or more, the 5 pennies are traded for a nickel. Players take turns rolling the cube to collect additional coins.
5. The first player to reach the set amount wins.
6. Add the quarter to the game when the children are ready. As each player accumulates 5 nickels, they are traded for quarters.

Parent Pointer
Counting money and batching in groups of 2s, 5s, or 10s teaches children matching skills and helps in the beginning stages of addition and multiplication. Children also learn how to identify coins and understand their values.



Parent Pointer

Playing with numeral cards helps children learn to compare quantities of numbers. Children can also learn addition and subtraction.

More or Less

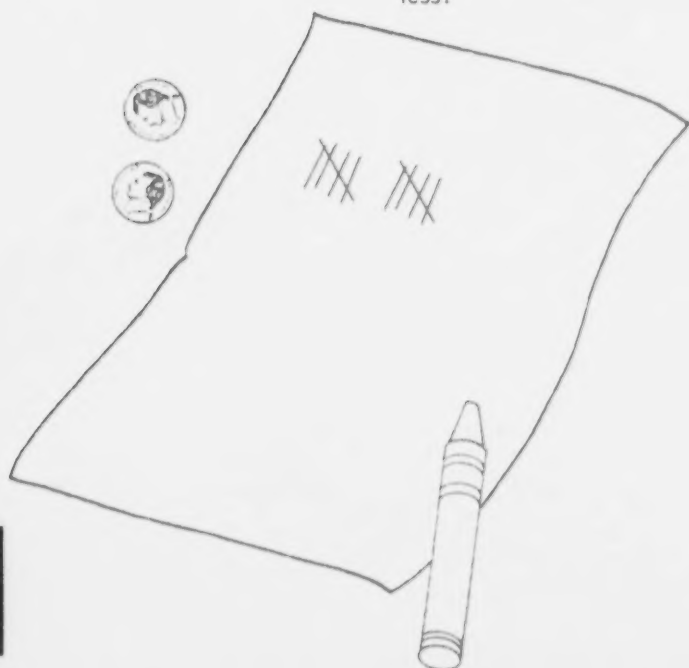
Grades K-2

What you'll need

One coin, number cards (from book cover), scratch paper, pen, and pencil

What to do

1. Two players will play a card game where each will draw a card. The players will compare cards to see who wins that round. Before you begin, flip the coin and call "heads" or "tails" to see if the winner of each round will be the person with a greater value card (heads) or a smaller value card (tails).
2. To begin the game, divide the cards evenly between the two players.
3. Place the cards face down. Each player turns over one card at a time and compares: Is mine more or less? How many more? How many less? The player with the greater or smaller value card (depending on whether heads or tails was tossed) takes both cards.
4. The winner of the game is the player with more cards when all the cards are gone from the stack.
5. Now try the same activity with each player pulling two cards and adding them. Which sum is more? How much more? How much less?



Problem Solvers

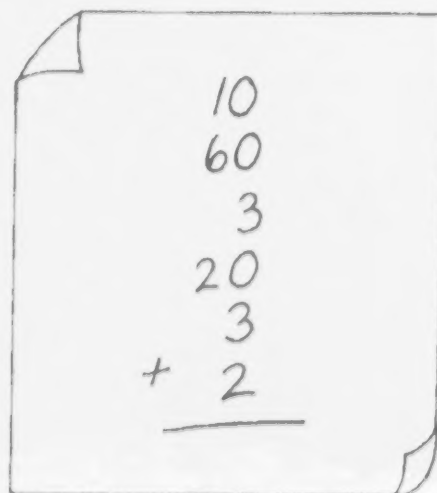
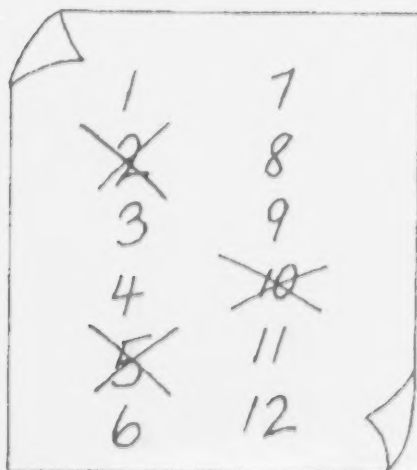
Grades 1-3

What you'll need

Enough sets of cards so that each player has a set of cards numbered 1 through 6 (use cards from inside covers of this booklet).

What to do

1. **Super sums.** Each player writes numbers 1-12 on a piece of paper. The object of the game is to be the first one to cross off all the numbers on this list. Use only the cards 1-6. Each player picks two cards and adds up the numbers on them. The players can choose to mark off the numbers on the list by using the total value or crossing off two or three numbers that make that value. For example, if a player picks a 5 and a 6, the player can choose to cross out 11, or 5 and 6, or 7 and 4, or 8 and 3, or 9 and 2, or 10 and 1, or 1, 2, and 8. If a player cannot cross off a number, the player loses the turn. The first player to cross off all the numbers wins.
2. **Make the sum of 100.** Use only cards 1-6. Each player takes turns drawing a card and each player must take 6 cards from the deck. With each draw, a player decides whether to use the number on the card in the 10s place or the 1s place so that the numbers total as close to 100 as possible without going over. For example, suppose a player draws the following cards in this order: 1, 6, 3, 2, 3, 2, and chooses to use the numerals in the following way:



Parent Pointer

This card game helps children develop various ways to use numbers in different combinations and to see the many possibilities of arriving at the same sum by adding different sets of numbers.

Card Smarts Grades 3-5

What you'll need

Number cards, pencil, and paper

What to do

Parent Pointer

This card game helps children develop strategies for using numbers in different combinations using addition, subtraction, multiplication, and division.

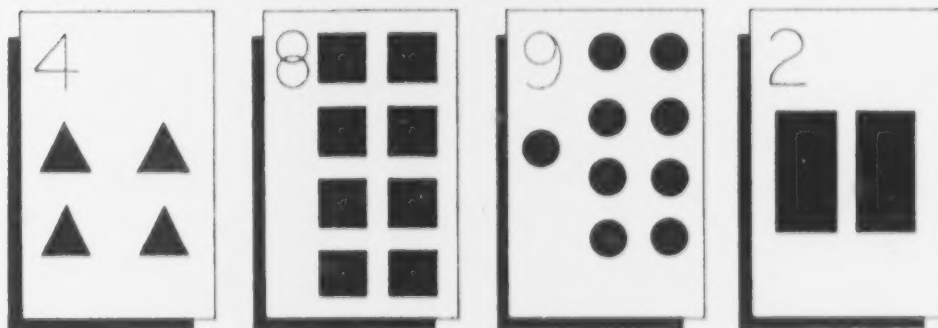
$$4 + 9 + 8 + 2 = 23$$

$$4 + 9 - (8 + 2) = 3$$

$$(8 - 4) \times (9 - 2) = 28$$

$$(9 - 8) \times (4 - 2) = 2$$

1. **How many numbers can we make?** Give each player a piece of paper and a pencil. Using the cards from 1 to 9, deal four cards out with the numbers showing. Using all four cards and a choice of any combination of addition, subtraction, multiplication, and division, have each player see how many different numbers a person can get in 5 minutes. Players get one point for each answer. For example, suppose the cards drawn are 4, 8, 9, and 2. What numbers can be made?
2. **Make the most of it.** This game is played with cards from 1 to 9. Each player alternates drawing one card at a time, trying to create the largest 5-digit number possible. As the cards are drawn, each player puts the cards down in their "place" (ten thousands, thousands, hundreds, tens, ones) with the numbers showing. Once placed, a card cannot be moved. The first player with the largest 5-digit number wins. For example, if a 2 was drawn first, the player might place it in the ones' place, but if the number had been an 8, it might have been put in the ten thousands' place.



$$4 + 8 + 9 + 2 = 23 \quad \text{or} \quad 4 + 9 - (8 + 2) = 3$$

$$(9 - 8) \times (4 - 2) = 2 \quad \text{or} \quad (8 - 4) \times (9 - 2) = 28$$

Let's Play Store

Grades K-5

What you'll need

Empty containers (cartons or boxes), old magazines, books, newspapers, calculator, pencil or crayon, and paper

What to do

1. Help your child collect empty containers so that you can play as if you were shopping at the grocery store. Gather the items and put them on a table.
2. Help your child think of a price for each item. Mark the prices on the containers. You can even mark some items on sale.
3. Pretend to be the customer while your child is the cashier.
4. Teach your child the difference between the math symbols ($+$, $-$, $\times$, and $=$) and how they are used when using the calculator. Help your child add the prices of each item on the calculator and total the amount using the ($=$) symbol. Have your child write the total on a piece of paper, which will be your receipt.
5. While you and your child play store, you can ask questions like—how much would it cost to buy three cartons of eggs? How much does 1 box of soap cost, if they are 2 for \$5.00? How much is my bill, if I don't buy the cereal? How much more will it cost if I buy this magazine? Have your child estimate the amounts of the items you are buying. Check to see if the estimation is correct on the calculator.

Parent Pointer

Learning to use the calculator will help your child understand and apply estimation and reasoning skills, as well as learn addition, subtraction, division, and multiplication.



What Our Children Are Learning

You probably remember studying "arithmetic"—adding, subtracting, multiplying, and dividing—when you were in elementary school. Now, children are starting right away to learn about the broad ideas associated with math, including problem solving, communicating mathematically, reasoning, and number sense. Listed below are a few of the key mathematical concepts that appear in elementary school math books and classroom instruction today.

- **Algebra:** Algebra is a generalization of arithmetic in which letters of the alphabet represent numbers or a specified set of numbers, and are related by operations that hold for all numbers in the set. Children use algebra when they solve problems like $4 + \square = 7$, with letters replacing the box as children get older.
- **Arithmetic:** Arithmetic is the knowledge and the ability to add, subtract, multiply, and divide whole numbers and fractions. For example: $5 + 1$, $10 - 5$, 6×2 , $3 \div 12$, and $\frac{3}{4} + \frac{1}{2}$.
- **Calculus:** Calculus is about how quantities change. By understanding calculus, people can use math to make predictions about things that change over time.
- **Estimation:** Estimation is the act of approximating or guessing the number value of something. We use estimation regularly to determine such things as how many, how heavy, and how full. Being a good estimator also helps children know if answers on calculators or other computer-generated data make sense.
- **Geometry and spatial sense:** Geometry begins with children recognizing shapes by their characteristics and extends to their being able to use formulas and algebra to determine important details about each shape. For example, $a = \frac{1}{2}(bxh)$ is the formula for determining the area of a triangle.
- **Measurement:** Measurement is determining the lengths, areas, volume, time, and other quantities. Children need to know common units of measure such as inches or kilograms and how to use measurement tools.
- **Number sense:** Number sense is understanding the relative sizes of numbers and how to use them, whether doing arithmetic, estimation, measurement, or classification.
- **Probability:** Probability is determining the likelihood that something will happen, often expressed as a fraction or a ratio—1 in 10, $\frac{1}{10}$.
- **Statistics:** Statistics is the collection and analysis of numerical data. Taking a census and counting people is a statistical activity.

How Will Math Look in Your Child's Classroom?

As a result of the recent effort in mathematics teaching to include understanding in the teaching of math, from basic through advanced levels, the picture of your child's math class may, indeed, look different from what you remember when you were in school. For instance:

- **Children will be expected to know their math facts:** Children will be learning their math facts with an understanding of how facts relate to each other.
- **Children will be doing more than arithmetic:** Children will be seeing that math is much more than arithmetic (knowing the facts and number operations); it involves estimation, geometry, probability, statistics, and more.
- **Children will be striving to achieve high goals:** Children will be achieving high standards of understanding, complexity, and accuracy set for them by their parents, teachers, schools, and states.
- **Children will be actively involved in the study of mathematics:** Children will be doing tasks that involve investigations. They will be talking and writing explanations for their thinking.
- **Children will be working with one another:** Children will be collaborating to make discoveries, draw conclusions, and discuss math.
- **Children will be evaluated in a variety of ways:** Teachers will use many different ways to determine if children know and understand math concepts. Some of these will include writing samples, projects, or written tests. Not all evaluation will be the same for every classroom or every child.
- **Children will be using calculators to solve problems:** They will be using calculators not as crutches but as tools to solve more complex problems with bigger numbers than they could do otherwise. Children with good knowledge of math facts, number sense, and reasoning about math will be able to use the calculator most effectively.
- **Children will be using computers:** They will be developing databases, spreadsheets and computer graphics, while solving problems.



Resources

This section contains Web sites, mathematics computer software, books, and magazines that you might find helpful. Also, check your local library and bookstores.

1. Math Web sites (These contain great links for parents and children.)

- Eisenhower National Clearinghouse for Mathematics and Science Education: <http://www.enc.org/classroom/index.htm>
- National Council of Teachers of Mathematics: <http://www.nctm.org>
- U.S. Department of Education, America Counts: <http://www.ed.gov/inits/Math>
- U.S. Department of Education, Office of Educational Research and Improvement: <http://www.ed.gov/pubs/parents>
- The Math Forum: <http://forum.swathmore.edu/Library/>
- National Institute of Standards and Technology: <http://www.nist.gov/metric>

2. Mathematics computer software Web sites

- Edmark Corporation: <http://www.edmark.com/prod/math/>
- The Learning Company: <http://www.comgentech.com>
- Davidson & Associates: <http://www.thereviewzone.com/megamathblaster.html>

3. Math books for parents

- Apelman, Maja and King, Julie. *Exploring Everyday Math*. Heinemann.
- Burns, Marilyn. *Math for Smarty Pants*. Little, Brown, and Company.
- Gillespie, Janet G. and Kanter, Patsy. *Every Day Counts Partner Games K-6*. Great Source Education Group, Division of Houghton Mifflin.
- Great Source Education Group, Division of Houghton Mifflin. *Math on Call (4-6)*. *Math at Hand (2-5)*.
- Kulm, Gerald. *Math Power at Home*. American Association for the Advancement of Science.
- Kulm, Gerald. *Math Power in the Community*. American Association for the Advancement of Science.
- Kulm, Gerald. *Math Power in School*. American Association for the Advancement of Science.
- Matyas, Marsha and Triana, Estrella M. *In Touch with Mathematics* (available in English and Spanish). American Association for the Advancement of Science.
- National Council of Teachers of Mathematics. *Family Math Awareness Activities*.
- National Council of Teachers of Mathematics. *Principles and Standards for School Mathematics*.
- National Council of Teachers of Mathematics. *Using Calculators to Improve Your Child's Math Skills*.

- National PTA and Exxon Foundation. *Math Matters*.
- Room, Adrian. *The Guinness Book of Numbers*. Sterling Publishing Company, Inc.
- Stenmark, Jean, Thompson, Virginia, and Cossey, Ruth. *Family Math*. University of California at Berkeley.
- Thomas, David A., 1988. *The Math-Computer Connection*. Franklin Watts.
- Thomas, David A., 1988. *Math Projects for Young Scientists*. Franklin Watts.
- Walthall, Barbara, ed. *IDEAAS: Sourcebook for Science, Mathematics, and Technology Education*. American Association for the Advancement of Science.

4. Books for children

Almost every book you read with your child will offer the opportunity to talk about math. Some books lend themselves more to in-depth and specific math discussion. Here's a sampling of books to enjoy with your child. Check your public library for these and other books.

Anno, Mitsumasa. *Anno's Counting Book*. Thomas Y. Crowell.
 Anno, Mitsumasa. *Anno's Counting House*. Philomel Books.
 Anno, Mitsumasa. *Anno's Hat Trick*. Philomel Books.
 Anno, Mitsumasa. *Anno's Math Games*. Philomel Books.
 Anno, Mitsumasa. *Anno's Mysterious Multiplying Jar*. Philomel Books.
 Carle, Eric. *The Grouchy Ladybug*. Philomel Books.
 Carle, Eric. *1,2,3 to the Zoo*. Philomel Books.
 Carle, Eric. *The Very Hungry Caterpillar*. Philomel Books.
 Clement, Rod. *Counting on Frank*. Gareth Stevens Publishing.
 Cobb, Vicki and Darling Kathy. *Bet You Can*. Avon.
 Cobb, Vicki and Darling Kathy. *Bet You Can't*. Avon.
 Dee, Rub. *Two Ways to Count to Ten*. Holt.
 Demi. *Demi's Count the Animals 123*. Grosset and Dunlap.
 Feelings, Muriel. *Moja Means One: Swahili Counting Book*. Dial.
 Grayson, Marion. *Let's Count*. Robert B. Luce, Inc.
 Grayson, Marion. *Count Out*. Robert B. Luce, Inc.
 Hoban, Tana. *Circles, Triangles, and Squares*. MacMillan Publishing Company, Inc.
 Hoban, Tana. *Count and See*. MacMillan Publishing Company, Inc.
 Hoban, Tana. *Is It Rough, Is It Smooth, Is It Shiny?* MacMillan Publishing Company, Inc.
 Hudson, Cheryl. *Afro-Bets 123 Book*. Just Us Productions.
 Hutchins, Pat. *The Doorbell Rang*. Greenwillow Books.
 Hutchins, Pat. *One Hunter*. Greenwillow Books.
 Jones, Carol. *This Old Man*. Houghton Mifflin Company.
 Keats, Ezra Jack. *Over the Meadow*. Scholastic.
 Kitchen, Bert. *Animal Numbers*. Dial.
 Kredeser, Gail. *One Dancing Drum*. Phillips.
 Lionni, Leo. *Numbers to Talk About*. Pantheon Books.
 Marley Deborah. *Animals One to Ten*. Raintree.

McMillan, Bruce. *Counting Wildflowers*. Lothrop, Lee & Shepard Books, Inc.
McMillan, Bruce. *One, Two, One Pair*. Scholastic.
Nolan, Dennis. *Monster Bubbles*. Prentice Hall.
Pinczes, Elinor J. *A Remainder of One*. Houghton Mifflin.
Pluckrose, Henry. *Know about Counting*. Franklin Watts.
Pomerantz, Charlotte. *The Half-Birthday Party*. Clarion Books.
Ross, H.L. *Not Counting Monsters*. Platt and Munk.
Schwartz, David M. *How Much Is a Million?* Lothrop,
Lee & Shepard Books, Inc.
Schwartz, David M. *If You Made a Million*. Lothrop,
Lee & Shepard Books, Inc.
Sciczka, Jon and Smith, Lane. *Math Curse*. Viking.
Tafari, Nancy. *Who's Counting?* William Morrow & Co.
Testa, Fulvio. *If You Take a Pencil*. Dial.
Viorst, Judith. *Alexander Who Used to Be Rich Last Sunday*. Atheneum.
Vogel, Ilse-Margaret. *1 Is No Fun, But 20 Is Plenty!* Atheneum.
Ziefert, Harriet. *A Dozen Dizzy Dogs*. Random House.

5. Magazines

Dynamath. Scholastic. Available from the school division. Filled with many different activities that involve all strands of math. Children in grade five particularly like this. Nine publications are sent each school year. \$5.00 for the subscription.

Games Magazine, P.O. Box 10147, Des Moines, Iowa 50347. The adult version of *Games Junior* (see below). Older children may prefer this to *Games Junior*.

Games Junior, P.O. Box 10147, Des Moines, Iowa 50347. A challenging and fun magazine filled with all different kinds of games that give children hours of "brain workouts." Appropriate for ages 7 and up.

Math Power. Scholastic. Available from the school division. Exciting and inviting, this magazine is filled with many activities that involve all types of math. Good for grades 3 and 4. Nine publications are sent each school year for \$5.00.

Puzzlemania. Highlights, P.O. Box 18201, Columbus, Ohio 43218-0201. Includes puzzles involving words, logical thinking, hidden pictures, and spatial reasoning. The cost is about \$7.50 per month.

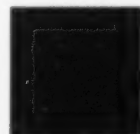
Zillions. Consumer Reports, P.O. Box 54861, Boulder, Colorado 80322. Children's version of Consumer Reports. Shows math in the real world and offers children the opportunity to see how gathering data and information can lead to good decisionmaking. The cost is approximately \$2.75 per issue.

Parent Pointer

Remember, healthy kids learn better. There are new opportunities to get free or low-cost health insurance coverage for children who are under age 19. Your state may have a new Children's Health Insurance Program (CHIP) for families with low and moderate incomes, including working families. For more information, call toll-free: 1-877-KIDS-NOW.

What You Can Do To Help Your Child Achieve in Math

- **Visit your child's school.** Meet with your child's teacher to see if your child is actively involved in math. Find out how you can help your child to better understand math problems.
- **Set high standards for your child in math.** Make sure your child is mathematically challenged and encourage his or her interest and pursuit of math. By the end of the 10th grade, your child should be expected to have studied algebra and geometry.
- **Help children see that math is very much a part of everyday life.** From statistics in sports to the sale price of clothing, from the calories in food to the amount of gas needed to travel from one city to another, math is important to us every day. Help your child make these connections to math.
- **Point out that many jobs require math.** From the scientist to the doctor, from the plant manager to the newspaper salesman, from the computer programmer to the hardware store owner, many jobs require a strong foundation in math. Help your child see that math leads to many exciting career opportunities.
- **Stimulate your child's interest in technology.** Encourage your child to use calculators and computers to further learning.
- **Play games that help children develop decisionmaking and mental math skills.** There are many games sold commercially, such as board games, that involve patterns and probability. Play games from your own family traditions such as counting games and games that keep score. Try schoolyard games such as jump rope, hopscotch, and jacks. Games require children to use strategies to make decisions, solve problems, and develop an understanding about numbers and how to use them (number sense) and computational skills.
- **Positive attitudes about math will reinforce encouragement.** Your feelings will have an impact on how your children think about math and themselves as mathematicians. Positive attitudes about math are important in encouraging your child to think mathematically.



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